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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,834	12/04/2003	Ulrich Bonne	H0004834(1100.1205101)	7422
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HONEYWELL INTERNATIONAL INC.				EXAMINER
101 COLUMBIA ROAD				TURK, NEIL N
P O BOX 2245			ART UNIT	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/727,834	<b>Applicant(s)</b> BONNE ET AL.
	<b>Examiner</b> NEIL TURK	<b>Art Unit</b> 1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

1) Responsive to communication(s) filed on 10 October 2008.  
 2a) This action is FINAL.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

4) Claim(s) 1-3, 9, 38, 40-46 and 49-52 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-3, 9, 38, 40-46 and 49-52 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 04 December 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

**DETAILED ACTION**

**Remarks**

This Office Action fully acknowledges Applicant's remarks filed on October 10<sup>th</sup>, 2008. Claims 1, 3-9, 38, 40-46, and 49-52 are pending. Claims 51 and 52 are newly added herein. Claims 2, 10-37, 39, 47, and 48 have been cancelled. Any objections/rejections not repeated herein have been withdrawn by The Office.

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 10<sup>th</sup>, 2008 has been entered.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 1, 3-9, 38, 40-46, and 50-52** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fein (6,016,372) in view of Carter et al. (6,328,932), hereafter Carter.

Fein discloses chemical sensing techniques employing liquid-core optical fibers. Fein discloses a gas or vapor permeable optical fiber waveguide with a liquid core is employed as a probe for the detection or measurement of a chemical species of interest by filling the waveguide core region with a reagent liquid which undergoes a change in

optical characteristic when exposed to the chemical specie and then inserting the filled waveguide into an environment in which the chemical specie may be present (abstract). Fein discloses that the polymer membrane used is permeable to gases, vapors, and certain chemical substances dissolved in a liquid matrix and the membrane is comprised of a polymer material which is amorphous, optically clear and has a refractive index which is less than 1.33 and the membrane can be formed into various self-supporting cylindrical shapes, which comprise optical waveguides when filled with liquid. Fein also discloses that the inside of the waveguide will be filled with a light conducting liquid and a wide range of chemical solutions whose optical properties are modified when exposed to permeant gases can be dissolved in the waveguide filling fluid (lines 48-67, col. 4; lines 1-12, col. 5). Fein also discloses that a preferable material for use as the containment tube of a reagent core waveguide is the copolymer of PDD and TFE, TEFLON AF 2400 being the copolymer of PDD with TFE, and the reagent core liquid inside the waveguide is an optical indicator responsive when exposed to the analyte. Fein discloses that the optical changes may be detected by UV/Vis absorption, fluorescence, chemiluminescence, or Raman spectrometry (lines 14-40, col. 5). Fein shows such a sensor with a liquid core waveguide as the main body in figures 1-5. Fein shows the liquid core waveguide 10 with liquid core region 12 with liquid core material 12', the sensor probe coupled to a light source 16 (laser, LED, tungsten lamp, etc.; lines 20-30, col. 11) through an optical fiber 18, the light propagating through and collected by an optical fiber(s) 20 to an analysis instrument 22 (lines 9-15, col. 6). Fein also discloses a flow-through technique where the core liquid 12 (indicator reagent) is

delivered to the waveguide sensor via supply conduit 24 (container connected to the input) and exits through discharge conduit 26 (container connected to the output) (lines 16-23, col. 6, fig. 1). Examiner asserts that the indicator reagent in the waveguide is the first fluid capable of being contained in the enclosure and the analyte passed through is the second fluid that is permitted. Examiner further asserts that as claims 1, 3, 38, and 40 are written the claims do not require either fluid to be present, but merely the apparatus must have the physical space for the fluids. Fein further discloses detection (such as by those methods listed above) and identification of various compounds which includes the use of processors and indicators (columns 8-12). Fein further discloses that a receiver is positioned to detect light passed through the waveguide and monitors a change in an optical characteristic of the reagent (claims 16-18, columns 14 and 15). Fein shows in figure 5 another embodiment in which a specimen gas is delivered to the interior of container of container 86 by means of a pump 88 disposed in an inlet duct 90, and the discharge conduit 92 for the specimen gas is provided with a valve, which is controllable. Fein discloses that the pump and the valve allows the pressure of the specimen gas about the exterior of the waveguide tube 14 to be controlled. Fein also discloses through exercise of control over pumps 88 and 96 and valves 94 and 98, the pressure difference between the interior of housing 86 and the interior of tube 14 can be varied so as to cause gases to move into or out of the core liquid 12' (lines 24-55, col. 12, fig. 5).

Fein does not specifically disclose a second light source with a second wavelength that the analyte does not absorb maximally, as in claim 1. With respect to

claim 38, Fein does specifically disclose a second light source having a second wavelength that is a reference wavelength.

With respect to claims 51 and 52, Fein does not specifically disclose a controller configured to pulse the first and second light sources.

Carter discloses a device for the detection of basic gases, such as hydrazine, ammonia, and related chemical species, in which a reference system can be provided to compensate for variations in optical response unrelated to the presence of analyte (abstract; lines 27-34, col. 2). Carter discloses a fiber optic sensor with a signal light source 18 providing a wavelength of light that is affected by interaction of hydrazine (or other analyte molecule), and also includes a second reference light source 21 which provides a wavelength of light that is not affected by the interaction of analyte with the transducer molecule (lines 36-60, col. 5; fig. 2). Carter further discloses that the sensor has circuitry (controller) for pulsing the light sources (as in claims 51 and 52) (lines 18-22, col. 6).

It would have been obvious to modify Fein to include a second light source with a second wavelength that the analyte does not absorb maximally, and in which such second wavelength is a reference wavelength, such as taught by Carter in order to provide a reference system to compensate for variations in optical response unrelated to the presence of the analyte, thereby providing a device that gives a more accurate reading of the analyte of interest. It would have also been obvious to modify Fein to include a controller configured to pulse the first and second light sources such as taught by Carter in order to provide circuitry for controllably initiating the analyzing and

reference wavelengths of light through the waveguide and analyte so as to yield the measurements necessary for producing the reference-corrected result.

**Claim 49** is rejected under 35 U.S.C. 103(a) as being unpatentable over Fein in view of Carter as applied to claims 1, 3-9, 38, 40-46, and 50-52 and in further view of Wong (5,444,249).

Fein in view of Carter does not specifically disclose a flow sensor in the enclosure.

Wong discloses a gas sensor with a light source at one end of a waveguide and a detector at the opposite end of the waveguide (abstract). Wong also discloses that other devices may be added to the gas sensor to enhance the performance of the sensor, and Wong discloses that a micro-flow sensor may be added to detect the flow rate of the sample gas through the sample chamber (lines 10-19, col. 3).

It would have been obvious to modify the Fein/Stetter device to include a flow sensor in the enclosure such as taught by Wong in order to enhance the performance of the gas sensor and provide for measuring the flow rate of the gas sample flowing through the sample chamber.

***Response to Arguments***

Applicant's arguments with respect to claims 1, 3-9, 38, 40-46, 49, and 50 have been considered but are moot in view of the new ground(s) of rejection. As discussed above, newly found prior art to Carter has been applied as necessitated by Applicant's amendments. Further, newly added claims 51 and 52 are rejected as discussed above. As such, claims 1, 3-9, 40-46, and 50-52 are rejected under 35 USC 103(a) over Fein in view of Carter. Further, claim 49 is rejected under 35 USC 103(a) over Fein in view of Carter as applied to claims 1, 3-9, 40-46, and 50-52 and in further view of Wong.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NEIL TURK whose telephone number is (571)272-8914. The examiner can normally be reached on M-F, 9-630.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NT

/Jill Warden/  
Supervisory Patent Examiner, Art Unit 1797